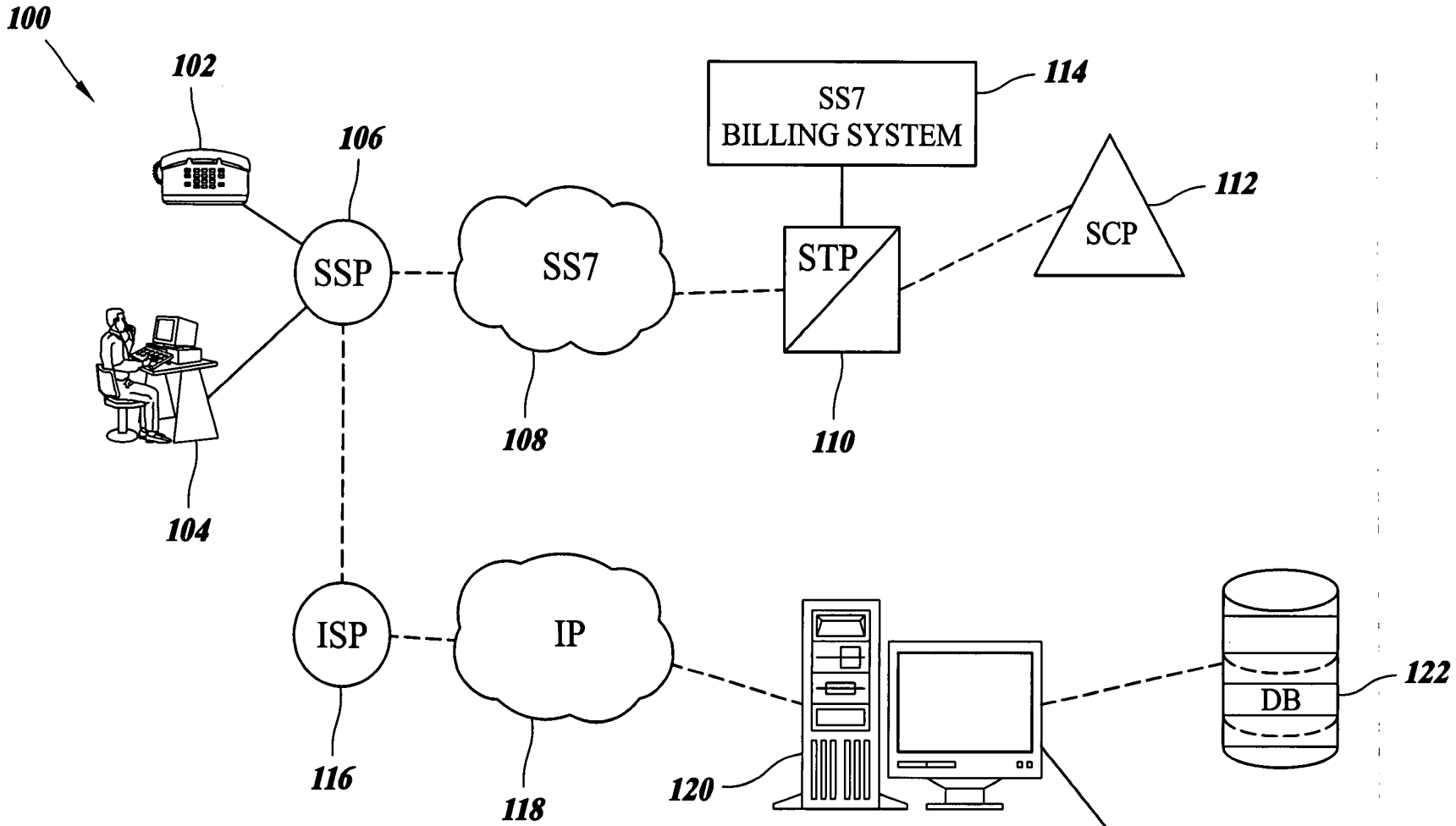

Figure 1

(PRIOR ART)

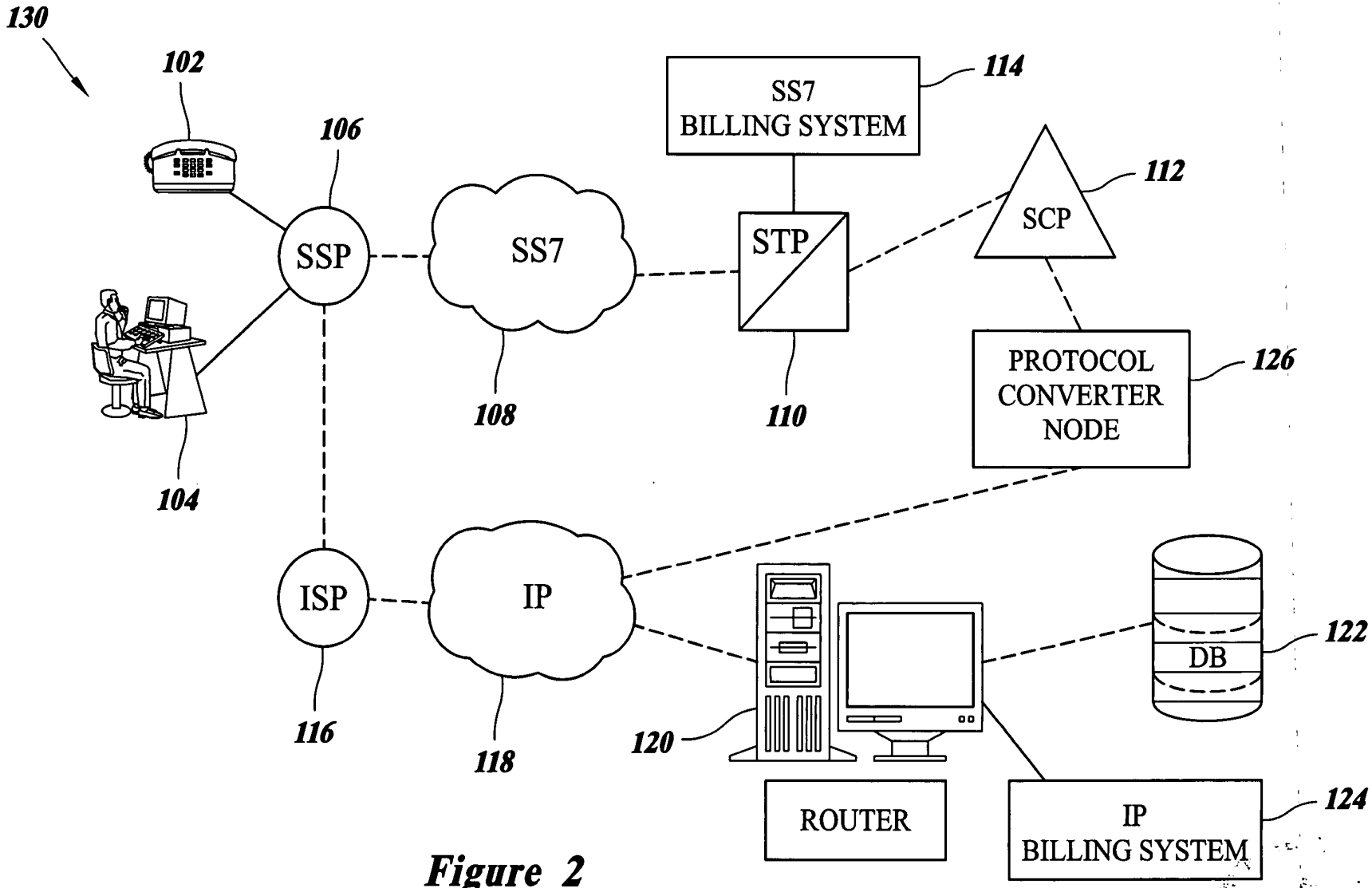

Figure 2

(PRIOR ART)

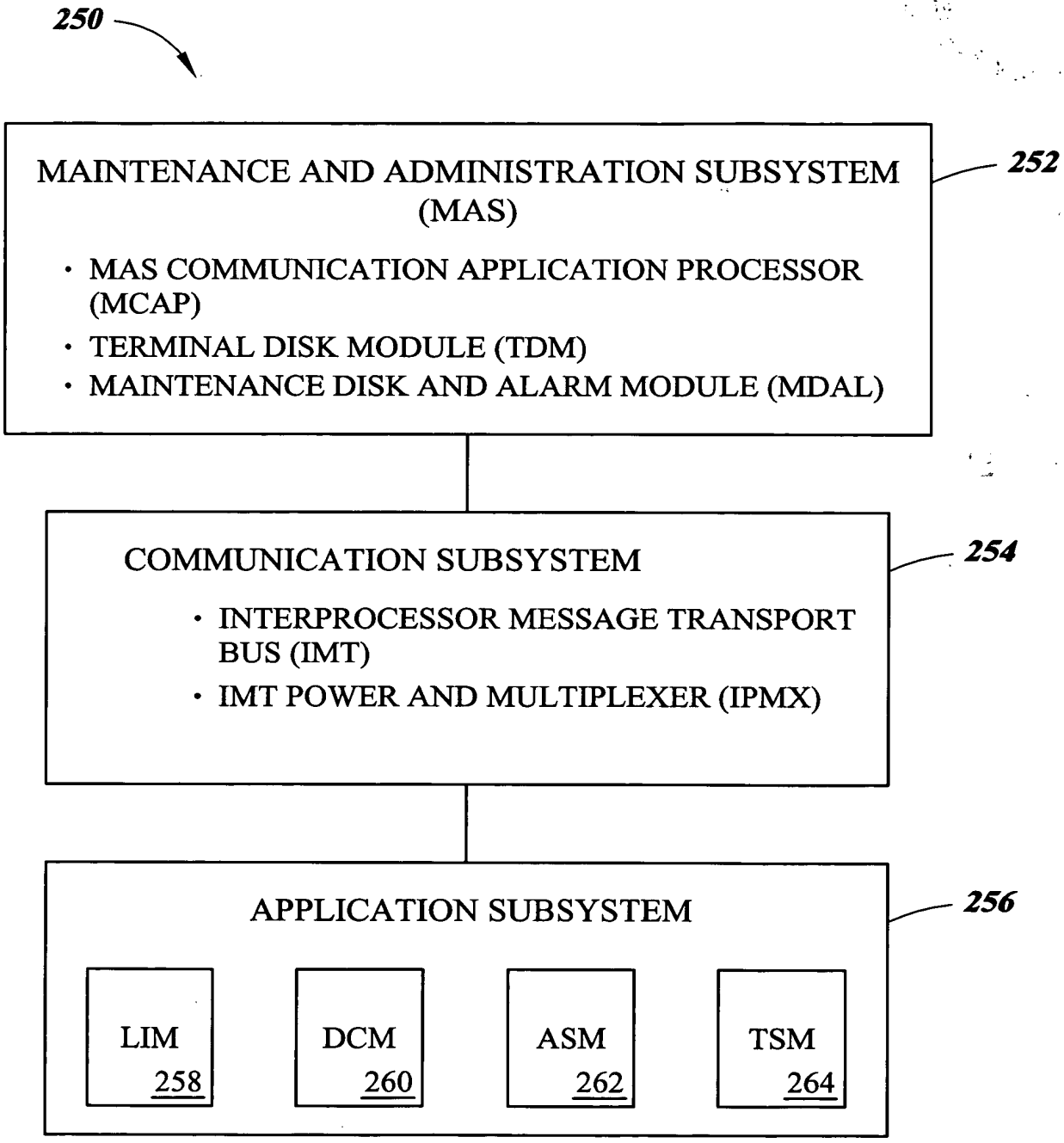
250
MAINTENANCE AND ADMINISTRATION SUBSYSTEM (MAS)
• MAS COMMUNICATION APPLICATION PROCESSOR (MCAP)
• TERMINAL DISK MODULE (TDM)
• MAINTENANCE DISK AND ALARM MODULE (MDAL)
252
COMMUNICATION SUBSYSTEM
• INTERPROCESSOR MESSAGE TRANSPORT BUS (IMT)
• IMT POWER AND MULTIPLEXER (IPMX)
254
APPLICATION SUBSYSTEM
256
LIM 258
DCM 260
ASM 262
TSM 264

Figure 3

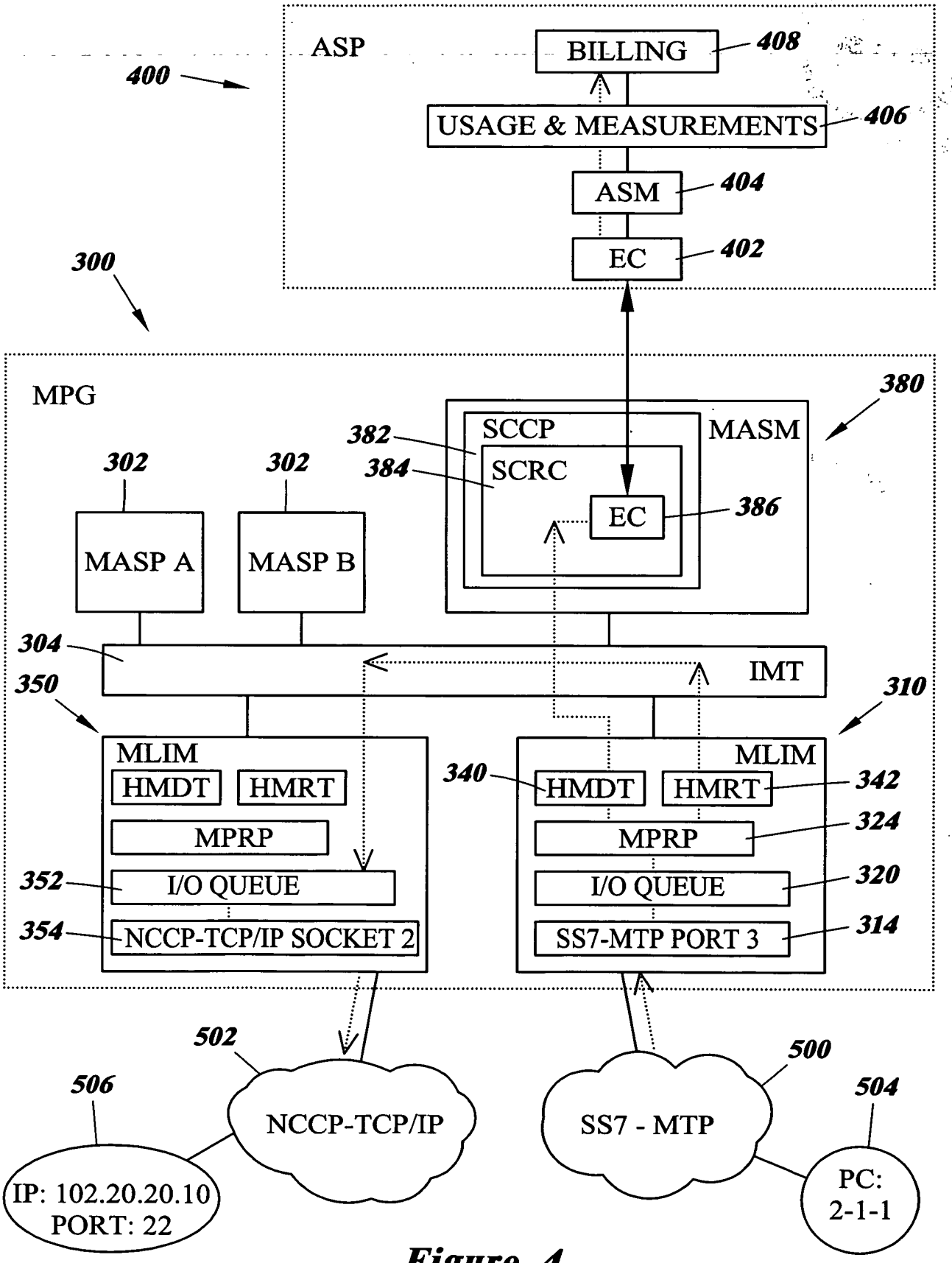
ASP
400
BILLING
408
USAGE & MEASUREMENTS
406
ASM
404
EC
402
300
MPG
380
SCCP
MASM
382
SCRC
384
EC
386
302
302
MASP A
MASP B
304
IMT
350
310
MLIM
HMDT
HMRT
MPRP
352
I/O QUEUE
354
NCCP-TCP/IP SOCKET 2
MLIM
340
HMDT
HMRT
342
MPRP
324
I/O QUEUE
320
SS7-MTP PORT 3
314
502
500
506
504
NCCP-TCP/IP
SS7 - MTP
IP: 102.20.20.10
PORT: 22
PC:
2-1-1

Figure 4

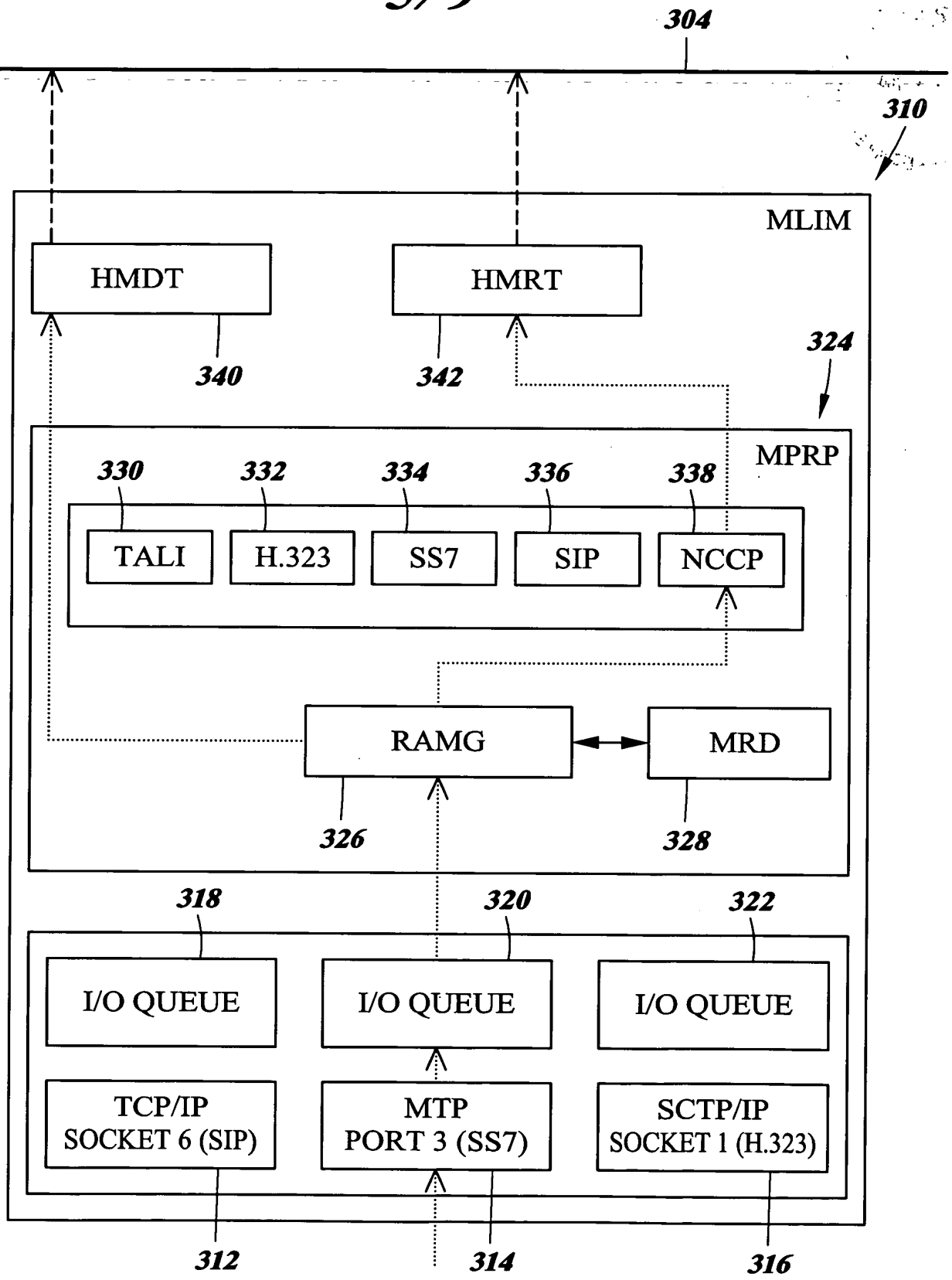
304
310
MLIM
HMDT
HMRT
340
342
324
MPRP
330
332
334
336
338
TALI
H.323
SS7
SIP
NCCP
RAMG
MRD
326
328
318
320
322
I/O QUEUE
I/O QUEUE
I/O QUEUE
TCP/IP
SOCKET 6 (SIP)
MTP
PORT 3 (SS7)
SCTP/IP
SOCKET 1 (H.323)
312
314
316

Figure 5

MRD DATABASE								
SS7 KEYS			DATA FIELDS					
KEY 1		KEY 2						
DPC	SSN	CdPA	SIGNALING PROTOCOL	PC/IP Add.	SSN/ PORT	ACCT.	OUTBOUND MLIM	OUTBOUND SOCKET/PORT
2-1-1	50	*	SS7	2-1-1	50	NO	2201	5
1-1-1	*	*	NCCP	102.20.20.10	22	YES	2201	1
*	*	9194605555	SIP	102.20.20.12	20	YES	2201	2
2-1-1	78	*	NCCP	104.20.10.10	30	NO	2102	8
2-1-2	*	*	H.323	uswest.cnaml	*	YES	4101	1
3-1-1	*	*	SS7	103.23.23.10	45	YES	3306	6

600

Figure 6(A)

MRD DATABASE								
IP KEYS			DATA FIELDS					
KEY 3		KEY 4						
HOST	PORT	CdPA	SIGNALING PROTOCOL	PC/IP Add.	SSN/ PORT	ACCT.	OUTBOUND MLIM	OUTBOUND SOCKET/PORT
101.10.10.25	23	*	SS7	2-1-1	50	NO	4201	12
101.10.10.35	34	*	SS7	2-1-1	50	NO	4101	3
*	*	jsmith@aol.com	SS7	2-1-1	20	YES	4301	16
102.20.20.10	25	*	SIP	101.50.50.10	45	YES	4101	6
102.20.20.10	23	*	H.323	102-20-20-10	23	YES	3108	15
103.30.30.10	24	*	NCCP	103.30.30.10	24	NO	3402	13
		Retailer.com	SIP	104.40.50.10	34	YES	3301	18

602

Figure 6(B)

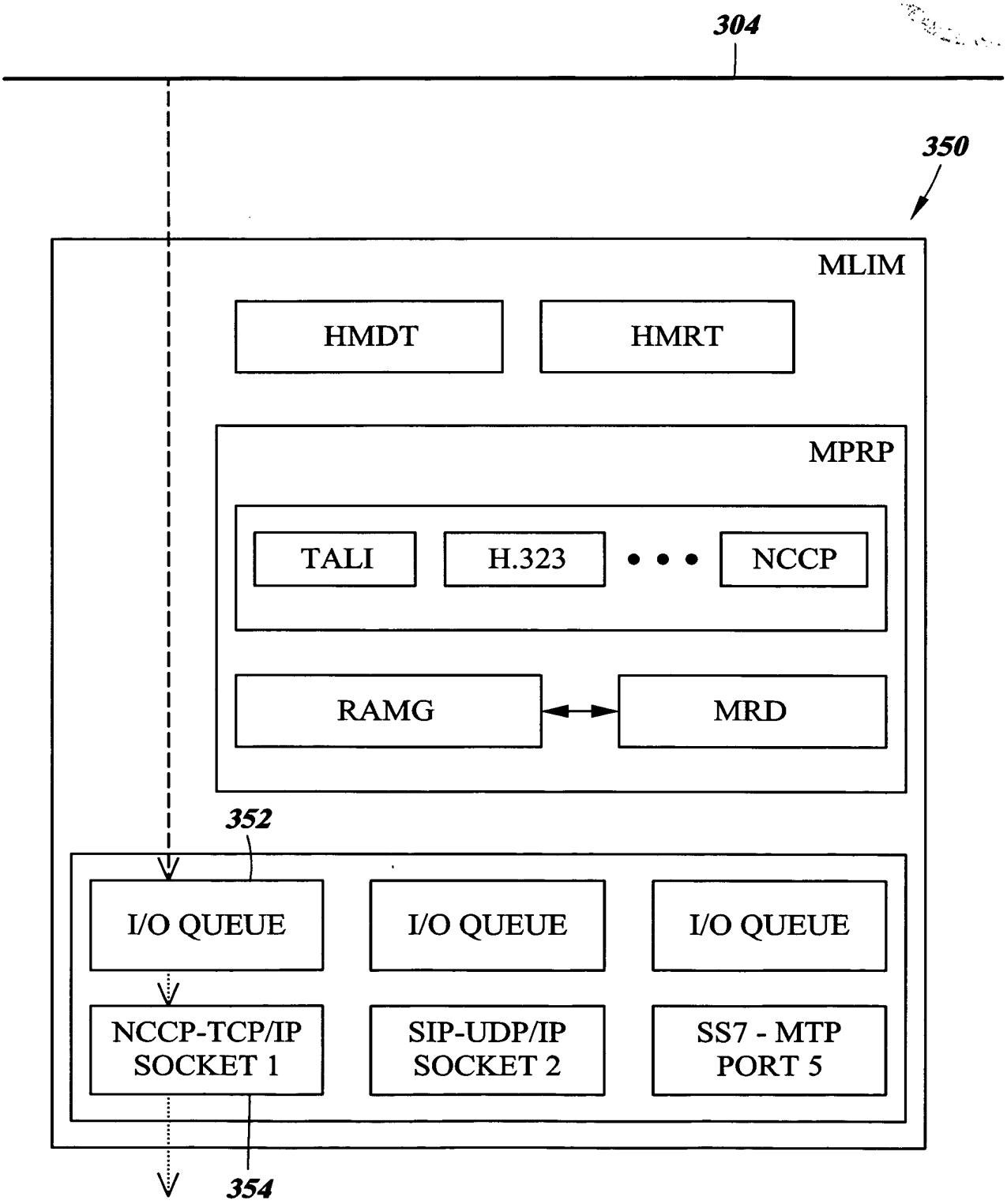
304
350
MLIM
HMDT
HMRT
MPRP
TALI
H.323
NCCP
RAMG
MRD
352
I/O QUEUE
I/O QUEUE
I/O QUEUE
NCCP-TCP/IP SOCKET 1
SIP-UDP/IP SOCKET 2
SS7 - MTP PORT 5
354

Figure 7

USAGE & MEASUREMENTS DATABASE								
KEYS		DATA FIELDS						
CALL ID	TIME	SERVICE PROVIDER	SERVICE RECIPIENT	SERVICE TYPE	CdPA	ORIGINATING PC/IP Add.		SSN/PORT
1025	23:12.23	12	34	01	jsmith@aol.com	2-1-1		50
1534	23:34.01	23	13	01	9194605500	102.20.20.10		23
1632	23:36.59	12	15	03	Retailer.com	103.30.30.10		24

410

Figure 8